Having thus, described the invention, what is claimed is:

1. A water jet propeller apparatus, comprising:

a stator defining a channel therein;

an impeller rotatably disposed in the stator;

an impeller shaft rotatably supported in the stator and connected to the impeller; and

wherein said impeller comprises a collar for placement surrounding the outer periphery of the impeller shaft, said collar being integrally formed with the impeller;

and wherein said apparatus further comprises a water-resistant seal surrounding the collar.

2. The water jet propeller apparatus of claim 1, further comprising a bearing unit operatively connected to the stator and housed therein, and wherein said collar extends inside a portion of said bearing unit.

3. The water jet propeller apparatus of claim 1, wherein said water-resistant seal comprises two sequential annular sealing members.

4. A water jet propeller apparatus according to Claim 1, wherein the impeller shaft is threadably connected to a rear portion of the impeller.

5. A water jet propeller apparatus according to Claim 1, wherein a drive shaft is connectable to a front portion of the impeller by a spline fit.

6. A water jet propeller apparatus according to Claim 1, wherein the water-jet propeller further comprises a shock-absorbing member provided in the impeller proximate a front end of the impeller shaft to cushion a rear tip end of the drive shaft, the shock-absorbing member having an outer periphery with at least one fluid passage formed therein

said shock-absorbing member being constructed and arranged to allow a fluid to flow therepast, from the impeller shaft side toward the drive shaft side, when the impeller shaft is installed on the impeller.

7. A water jet propeller apparatus according to claim 6, wherein the shock absorbing member comprises a reduced-diameter reduced-diameter fitting portion and a large-diameter sealing portion, and wherein said at least one fluid passage comprises a plurality of grooves formed substantially radially from said reduced-diameter fitting portion to an edge of said sealing portion.

8. A water jet propeller apparatus according to Claim 1,

wherein the impeller shaft is threadably connected to a rear portion of the impeller, wherein a drive shaft is connectable to a front portion of the impeller by a spline fit,

and wherein the water-jet propeller further comprises a shock-absorbing member provided in the impeller proximate a front end of the impeller shaft to cushion a rear tip end of the drive shaft, the shock-absorbing member having an outer periphery with at least one fluid passage formed therein;

said shock-absorbing member being constructed and arranged to allow a fluid to flow therepast, from the impeller shaft side toward the drive shaft side, when the impeller shaft is threadably installed on the impeller.

9. A water jet propeller apparatus, comprising:

a stator defining a channel therein;

an impeller rotatably disposed in the stator;

an impeller shaft rotatably supported in the stator and connected to the impeller;

a collar provided on the outer periphery of the impeller shaft;

a water-resistant seal surrounding the collar; and

a shock-absorbing member provided in the impeller proximate a front end of the impeller shaft to cushion a rear tip end of the drive shaft, the shock-absorbing member having an outer periphery with at least one fluid passage formed therein

said shock-absorbing member being constructed and arranged to allow a fluid to flow therepast, from the impeller shaft side toward the drive shaft side, when the impeller shaft is installed on the impeller.

10. The water jet propeller apparatus of claim 9, wherein the shock absorbing member comprises a reduced-diameter reduced-diameter fitting portion and a large-

diameter sealing portion, and wherein said at least one fluid passage comprises a plurality of grooves formed substantially radially from said reduced-diameter fitting portion to an edge of said sealing portion.

11. The water jet propeller apparatus of claim 9, wherein the shock absorbing member has a convex front face for cushioning contact with a rear tip portion of said drive shaft.

12. The water jet propeller apparatus of claim 9, wherein the shock absorbing member comprises at least one resiliently deformable lip at an outer periphery thereof.

13. The water jet propeller apparatus of claim 9, further comprising a bearing unit operatively connected to the stator and housed therein, and wherein said collar extends inside a portion of said bearing unit.

14. The water jet propeller apparatus of claim 9, wherein said water-resistant seal comprises two sequential annular sealing members.

15. A water jet propeller apparatus according to Claim 9, wherein the impeller shaft is threadably connected to a rear portion of the impeller.

16. A water jet propeller apparatus according to Claim 9, wherein a drive shaft is connectable to a front portion of the impeller by a spline fit.

17. A water jet propeller apparatus, comprising:

a stator defining a channel therein;

an impeller rotatably disposed in the stator;

an impeller shaft rotatably supported in the stator and connected to the impeller;

a collar provided on the outer periphery of the impeller shaft; and

a water-resistant seal surrounding the collar;

wherein the impeller shaft is threadably connected to a rear portion of the impeller.

18. A water jet propeller apparatus according to Claim 9, wherein a drive shaft is connectable to a front portion of the impeller by a spline fit.

19. The water jet propeller apparatus of claim 1, further comprising a bearing unit operatively connected to the stator and housed therein, and wherein said collar extends inside a portion of said bearing unit.

20. A water jet propeller apparatus according to Claim 1, wherein the water-jet propeller further comprises a shock-absorbing member provided in the impeller proximate a front end of the impeller shaft to cushion a rear tip end of the drive shaft, the shock-absorbing member having an outer periphery with at least one fluid passage formed therein

said shock-absorbing member being constructed and arranged to allow a fluid to flow therepast, from the impeller shaft side toward the drive shaft side, when the impeller shaft is installed on the impeller.